USER'S INFORMATION MANUAL

SERIES 2®

GAS - FIRED BOILER

WARNING: If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- **Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.**
- **WHAT TO DO IF YOU SMELL GAS**
  - **Do not try to light any appliance.**
  - **Do not touch any electrical switch; do not use any phone in your building.**
  - **Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.**
  - **If you cannot reach your gas supplier, call the fire department.**
- **Installation and service must be performed by a qualified installer, service agency or the gas supplier.**

AVERTISSEMENT. Assurez-vous de bien suivre les instructions données dans cette notice pour réduire au minimum le risque d'incendie ou d'explosion ou pour éviter tout dommage matériel, toute blessure ou la mort.

- **Ne pas entreposer ni utiliser d'essence ni d'autres vapeurs ou liquides inflammables dans le voisinage de cet appareil ou de tout autre appareil.**
- **QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:**
  - **Ne pas tenter d'allumer d'appareils.**
  - **Ne touchez à aucun interrupteur. Ne pas vous servir des téléphones dans le bâtiment où vous vous trouvez.**
  - **Appelez immédiatement votre fournisseur de gaz depuis un voisin. Suivez les instructions du fournisseur.**
  - **Si vous ne pouvez rejoindre le fournisseur de gaz, appelez le service des incendies.**
- **L'installation et l'entretien doivent être assuréx par un installateur ou un service d'entretien qualifié ou par le fournisseur de gaz.**



U.S. Boiler Company

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The following terms are used throughout this manual to bring attention to the presence of hazards of various risk levels.

WARNING	CAUTION
Indicates a potentially hazardous situation which, if not avoided, could result in death, serious injury or substantial property damage.	**Indicates a potentially hazardous situation which, if not avoided, may result in moderate or minor injury or property damage.**

Important Product Safety Information
Refractory Ceramic Fiber Product

Warning:

The Repair Parts list designates parts that contain refractory ceramic fibers (RCF). RCF has been classified as a possible human carcinogen. When exposed to temperatures about 1805°F, such as during direct flame contact, RCF changes into crystalline silica, a known carcinogen. When disturbed as a result of servicing or repair, these substances become airborne and, if inhaled, may be hazardous to your health.

AVOID Breathing Fiber Particulates and Dust

Precautionary Measures:

Do not remove or replace RCF parts or attempt any service or repair work involving RCF without wearing the following protective gear:

1. A National Institute for Occupational Safety and Health (NIOSH) approved respirator
2. Long sleeved, loose fitting clothing
3. Gloves
4. Eye Protection

- Take steps to assure adequate ventilation.
- Wash all exposed body areas gently with soap and water after contact.
- Wash work clothes separately from other laundry and rinse washing machine after use to avoid contaminating other clothes.
- Discard used RCF components by sealing in an airtight plastic bag. RCF and crystalline silica are not classified as hazardous wastes in the United States and Canada.

First Aid Procedures:

- If contact with eyes: Flush with water for at least 15 minutes. Seek immediate medical attention if irritation persists.
- If contact with skin: Wash affected area gently with soap and water. Seek immediate medical attention if irritation persists.
- If breathing difficulty develops: Leave the area and move to a location with clean fresh air. Seek immediate medical attention if breathing difficulties persist.
- Ingestion: Do not induce vomiting. Drink plenty of water. Seek immediate medical attention.

CAUTION

Should overheating occur or the gas supply fail to shut off, do not turn off or disconnect the electrical supply to the pump. Instead, shut off the gas supply at a location external to the appliance.
En cas de surchauffe ou si l'admission de gaz ne peut étre coupée, ne pas couper ni débrancher l'alimentation électrique de la pompe. Fermer plutôt le robinet d'admission de gaz à l'extérieur de l'appareil.

Do not use this boiler if any part has been under water. Immediately call a qualified service technician to inspect the boiler and to replace any part of the control system and any gas control which has been under water.

Avoid operating this boiler in an environment where saw dust, loose insulation fibers, dry wall dust, etc. are present. If boiler is operated under these conditions, the burner interior and ports must be cleaned and inspected daily to insure proper operation.

A. General This boiler is equipped with controls for proper operation. All controls must be in proper working order. Contact a qualified service agency to provide annual maintenance as specified in the Installation, Operating and Service Instructions.

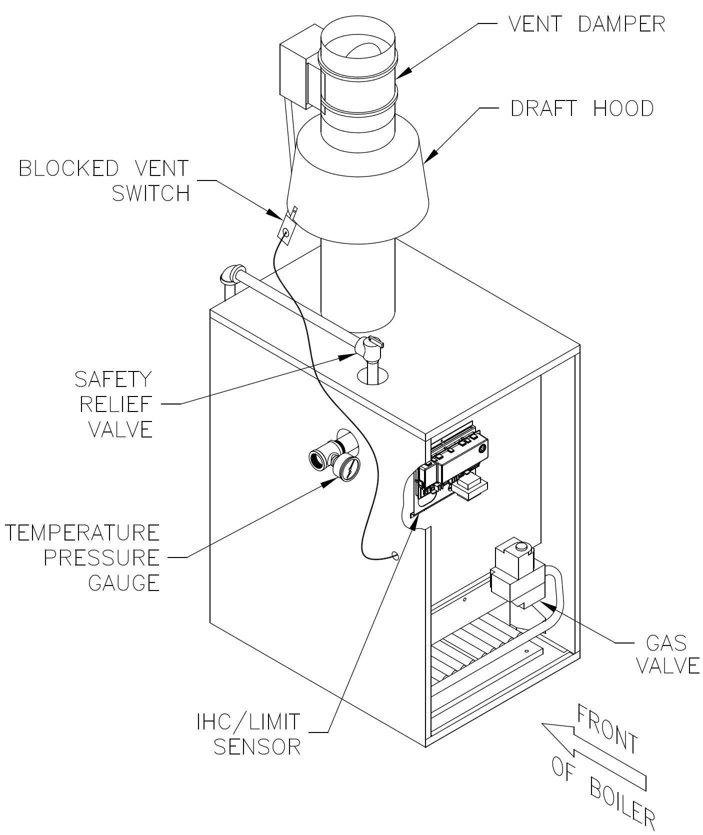


Figure 1: Control Locations

WARNING

Service on this boiler should be undertaken only by trained and skilled personnel from a qualified service agency.

WARNING

Do not reset Block Vent Switch unless a qualified service agency has determined and corrected the cause of any blockage in the vent system or chimney.

1. **Limit** See Figure 1. A device which automatically interrupts boiler operation when the water temperature exceeds the set point. Maximum allowable boiler water temperature is 220°F. Switch differential is 15°F.

   Original equipment with this boiler is U.S. Boiler Intelligent Hydronic Control and Limit Rated Temperature Sensor combination. The Intelligent Hydronic Control shuts off boiler main burners when boiler water temperature exceeds pre-programmed Intelligent Hydronic Control water temperature set point. Boiler main burners will re-light automatically, providing the call for heat is present, when boiler water temperature falls below pre-programmed control water temperature set point less the set point differential.

2. **Blocked Vent Switch** See Figure 1. A device which automatically interrupts boiler operation when excessive vent system blockage occurs. If the control was activated to interrupt boiler operation,

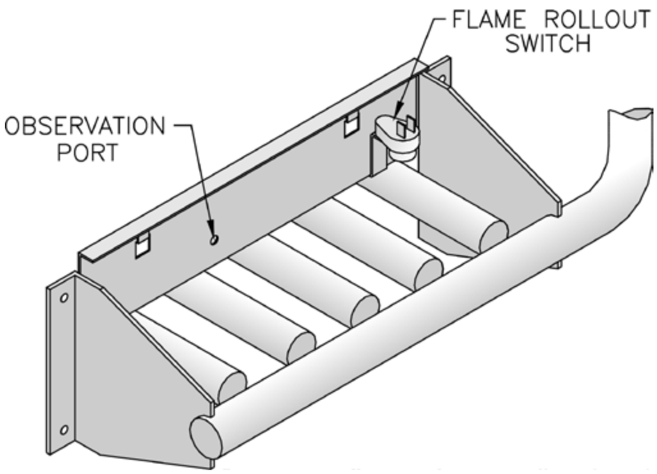


Figure 2: Flame Rollout Switch and Observation Port Location

do not attempt to place boiler in operation. Contact a qualified service agency.

3. **Flame Rollout Switch** See Figure 2. A device which automatically interrupts boiler operation when flames or excessive heat are present in the vestibule. The control is a single use device. If the control was activated to interrupt boiler operation, do not attempt to place boiler in operation. Contact a qualified service agency.
4. **Electronic Ignition System** - see Figure 1. The Electronic Ignition (EI) System consists of:
   a. a solid state ignition control with integral ignition module to initiate, monitor and stop burner operation.
   b. a combination gas valve to regulate gas flow to the main burners.
   c. a pilot burner to provide the ignition source for the main burners.

B. Instructions to place boiler in operation and to turn off boiler are shown on the Lighting or Operating Instruction label posted on the inside of the front removable door. See Figure 3 for front door removal instructions. The Lighting/Operating Instructions are also shown in Figures 4 and 5.

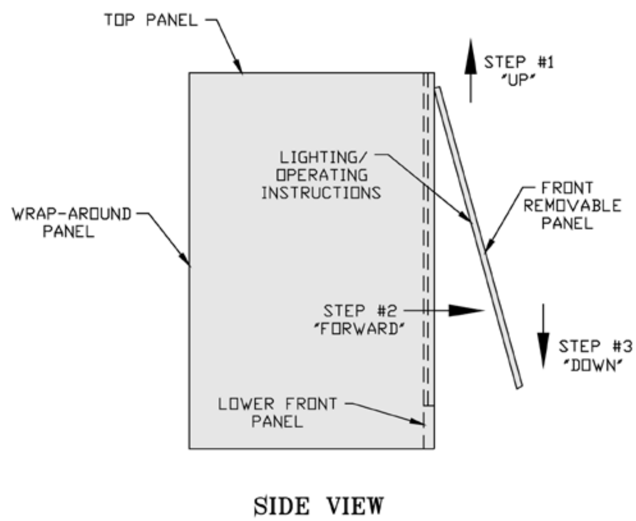


Figure 3: Jacket Front Panel Removal

User Maintenance

WARNING

Service on this boiler should be undertaken only by trained and skilled personnel from a qualified service agency. Inspections should be performed at intervals specified in Installation, Operating and Service Instructions and this manual. Maintain manuals in a legible condition.

Keep boiler area clear and free of combustible materials, gasoline and other flammable vapors and liquids.

Do not place any obstructions in boiler room that will hinder flow of combustion and ventilation air.

A. General Housekeeping (Continuous).

1. Keep boiler area clear and free of combustible materials and obstructions to the free flow of combustion and ventilation air to the boiler.
2. Do not store or use gasoline or other flammable vapors or liquids in the vicinity of the boiler or any other appliance.
3. Do not store or use sources of hydrocarbons in the vicinity of the boiler. Sources of hydrocarbons include bleaches, cleaners, chemicals, sprays, paint removers, fabric softeners, cat litter and refrigerants.

B. Inspect Vent System (Monthly). See Figure 6. Follow instructions TO TURN OFF GAS TO APPLIANCE (see Figures 4 and 5) and contact a qualified service agency if any of the following conditions are found:

1. Collapsed vent pipe
2. Disconnected or loose joints
3. Sags in horizontal runs
4. Corrosion or other deterioration
5. Broken or loose supports
6. Blocked vent switch not attached to draft hood.

FOR YOUR SAFETY READ BEFORE OPERATING/POUR VOTRE SECURITE LISEZ AVANT DE METTRE EN MARCHE

WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

AVERTISSEMENT: Quiconque ne respecte pas à la lettre les instructions dans la présente notice risque de déclencher un incendie ou une explosion entraînant des dommages, des blessures ou la mort.

A. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

B. BEFORE OPERATING smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

WHAT TO DO IF YOU SMELL GAS:

- Do not try to light any appliance.
- Do not touch any electric switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

A. Cet appareil est muni d'un dispositif d'allumage qui allume automatiquement la veilleuse. Ne tentez pas d'allumer la veilleuse manuellement.

B. AVANT DE FAIRE FONCTIONNER, reniflez tout autour de l'appareil pour déceler une odeur de gaz. Reniflez près du plancher, car certains gaz sont plus lourds que l'air et peuvent s'accumuler au niveau du sol.

QUE FAIRE SI VOUS SENTEZ UNE ODEUR DE GAZ:

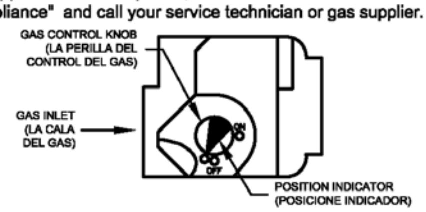
- Ne pas tenter d'allumer d'appareil.
- Ne touchez à aucun interrupteur ; ne pas vous servir des téléphones se trouvant dans le bâtiment.
- Appelez immédiatement votre fournisseur de gaz depuis voisin. Suivez les instructions du fournisseur.
- Si vous ne pouvez rejoindre le fournisseur, appelez le service des incendies.

C. Ne poussez ou tournez la manette d'admission du gaz qu'à la main; ne jamais utiliser d'outil. Si la manette reste coincee, ne pas tenter de la réparer; appelez un technicien qualifié. Le fait de forcer la manette ou de la réparer peut déclencher une explosion ou un incendie.

D. N'utilisez pas cet appareil s'il a été plongé dans l'eau, même partiellement. Faites inspecter l'appareil par un technicien qualifié et remplacez toute partie du système de contrôle et toute commande qui ont été plongés dans l'eau.

OPERATING INSTRUCTIONS/INSTRUCTIONS DE FONCTIONNEMENT

1. STOP! Read safety information above (to the left) on this label.
2. Set the thermostat to lowest setting.
3. Turn off all electric power to the appliance.
4. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.
5. Remove front door.
6. Locate the gas control valve at the end of the gas supply pipe going into the boiler. The gas control is the brown or blue plastic knob located on top of the gas control valve.
7. Rotate gas control knob clockwise from "ON" position to "OFF". Make sure know rests against stop.
8. Wait five (5) minutes to clear out any gas. Then smell for gas, including near the floor. If you smell gas, STOP! Follow "B" in the safety information above (to the left) on this label. If you don't smell gas, go to the next step.
9. Rotate gas control knob counterclockwise from "OFF" to "ON". Make sure knob rest against stop. Do not force.
10. Replace front door.
11. Turn on all electric power to the appliance.
12. Set the thermostat to the desired setting.
13. If the appliance will not operate, follow the instructions "To Turn Off Gas To Appliance" and call your service technician or gas supplier.



1. ARRÊTEZ ! Lisez les instructions de sécûrité sur la portion supérieure (a gauche) cette étiquette.
2. Réglez le thermostat à la température la plus basse.
3. Coupez l'alimentation électrique de l'appareil.
4. Cet appareil est équipé de l' dispositif d'allumage qui automobile allume maticallyle brûleur. Ne pas essayer d'allumer le brûleur près main.
5. Enlevez la porte de devant.
6. Localisez la valve du controle du Gaz a la fin du depart de la pipe de la proovision du gaz dans l'appareil. Le bouton plastique brun ou bleu localise sur la valve du controle du gaz. Voyez le diagramme.
7. Faites pivoter le bouton de contrôle du gaz dans le sens inverse des aiguilles d'une montre de "OFF" pour "ON".
8. Attendre cinq (5) minutes pour laisser échapper tout le gaz. Reniflez tout autour de l'appareil, y compris près du plancher, pour déceler une odeur de gaz, ARRÊTEZ ! Passez à l'étape B des instructions de sécûrité sur la portion supérieure (a gauche) cette étiquette. S'il n'y a pas d'odeur de gaz, passez à l'étape suivante.
9. Faites pivoter gas contrôle bouton clockwisefrom la position "ON" à "OFF". Assurez-vous que pommeau repose contre stop. Ne forcez pas.
10. Remplacer la porte de devant.
11. Allumer toute l'énergie électrique au appareil.
12. Réglez le thermostat à la température désirée.
13. Si l'appareil ne se met pas en marche, suivez les instructions intitulées "Comment couperl'admission de gaz de l'appareil" et appelez un technicien qualifié ou le fournisseur de gaz.

TO TURN OFF GAS TO APPLIANCE/COMMENT COUPER L'ADMISSION DE GAZ DE L'APPAREIL

1. Set the thermostat to lowest setting.
2. Turn off all electric power to the appliance if service is to be performed.
3. Remove front door.
4. Rotate gas control knob clockwise from "ON" position to "OFF". Make sure knob rests against stop.
5. Replace front door.

1. Regler le thermostat au plus bas regle.
2. Coupez l'alimentation électrique de l'appareil si le service devrait être exécuté.
3. Enlever la porte de devant.
4. Tourner le gaz regle le bouton dans le sens des aiguilles d'une montre a partir de position a de. Assurer que le se repose contre arete.
5. Remplacer le porte de devant

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Figure 4: Operating Instructions, VR8204 and VR8304 Gas Valves

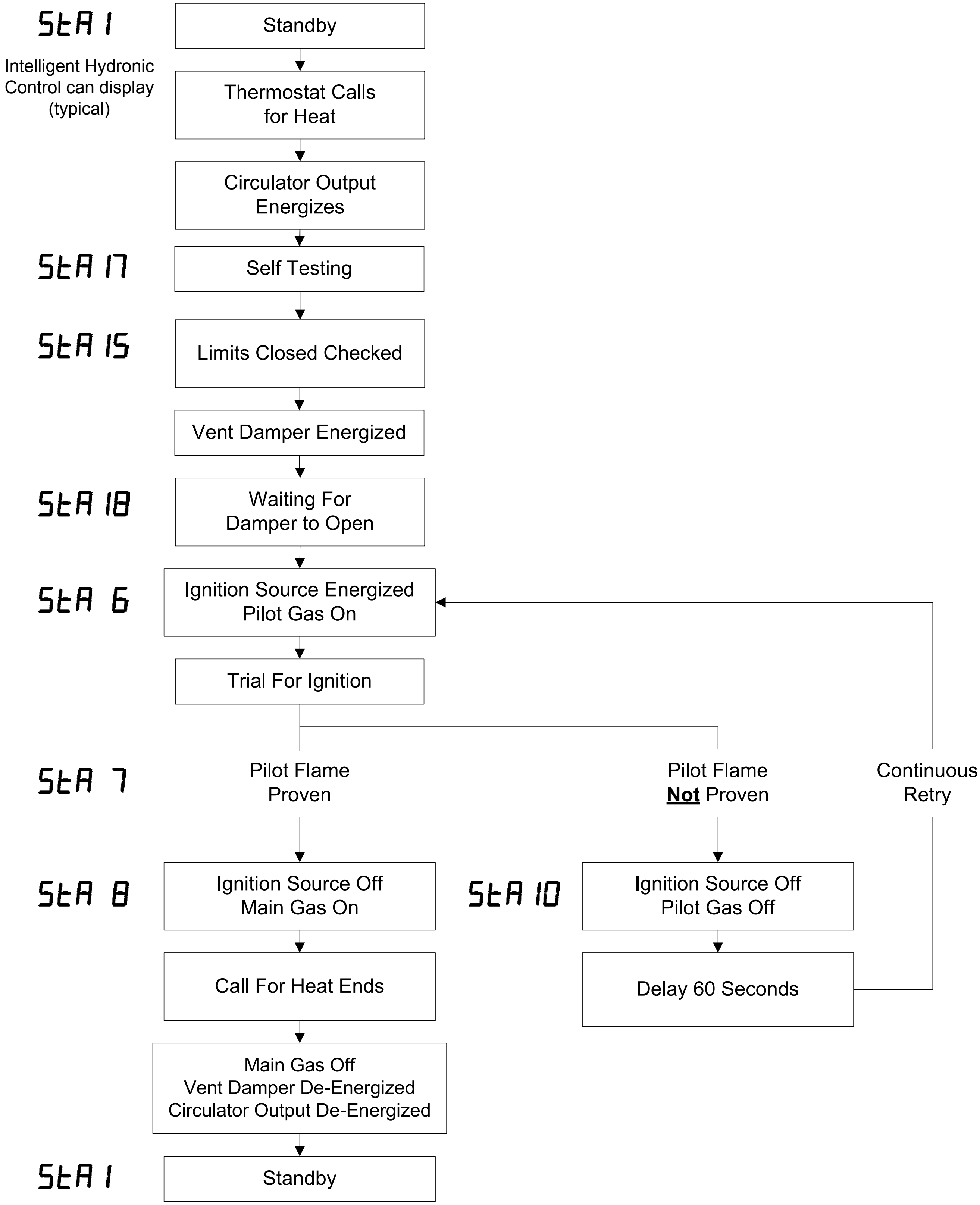


Figure 5: Sequence of Operation

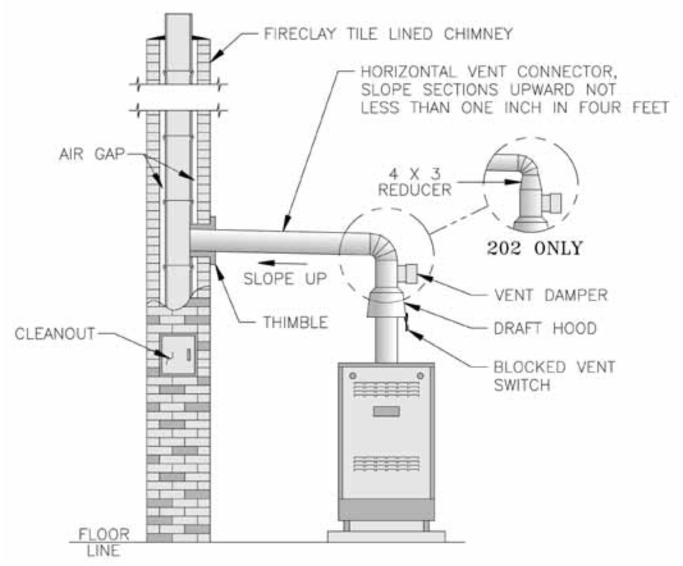


Figure 6: Typical Vent System Installation

C. Inspect Pilot and Main Burner Flame (Monthly).

1. Adjust thermostat to lowest setting.
2. Remove front removable panel. See Figure 3.
3. Locate Pilot Observation Port. See Figure 2.
4. Check pilot burner flame. See Figure 7.

   The pilot produces three (3) flames. The center flame should be steady, medium hard blue enveloping 3/8 to ½ inch of sensing probe. If flames are yellow and lazy, follow instructions TO TURN OFF GAS TO APPLIANCE (see Figure 4) and contact a qualified service agency.

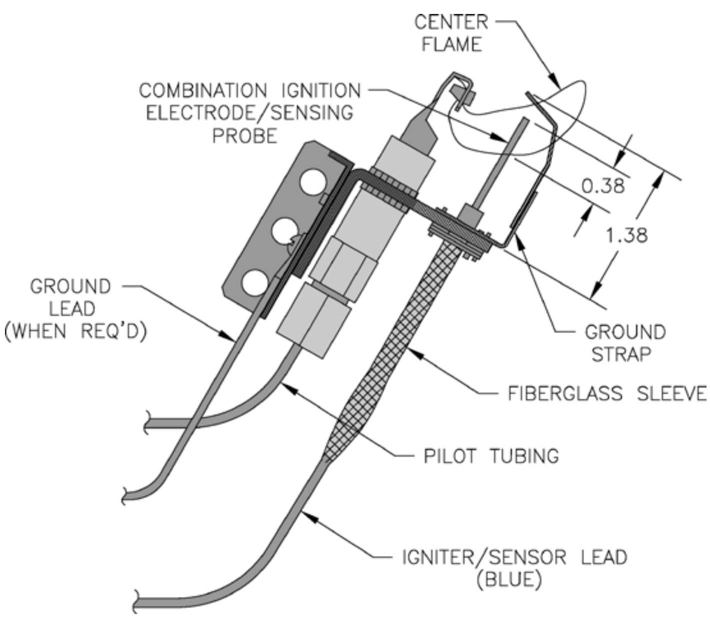


Figure 7: Pilot Burner Flame, Honeywell Q3481

5. Adjust thermostat to highest setting.
6. Check main burner flames. See Figure 8 or 9. Flame should have clearly defined inner cones with no yellow tipping. Orange-yellow streaks caused by dust should not be confused with true yellow tipping. If yellow flames are observed, follow instructions TO TURN OFF GAS TO APPLIANCE (see Figure 4) and contact a qualified service agency.
7. Adjust thermostat to normal setting.

D. Schedule Inspection by Qualified Service Agency (Annual or at Beginning of Heating Season). For continued safe operation a qualified service agency must provide a more detailed inspection of burners, heat exchanger and vent system, and provide maintenance as specified in Installation, Operating and Service Instructions.

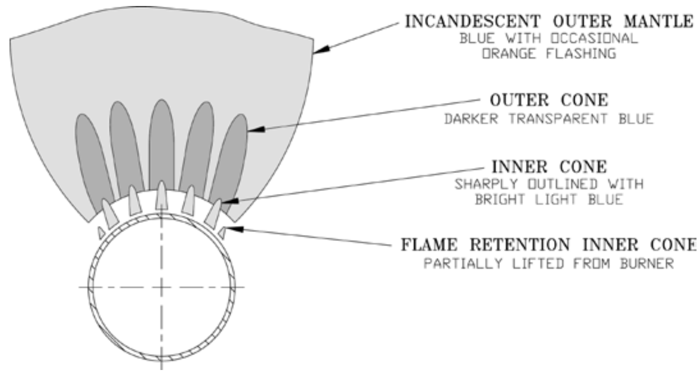


Figure 8: 40mm Main Burner Flame

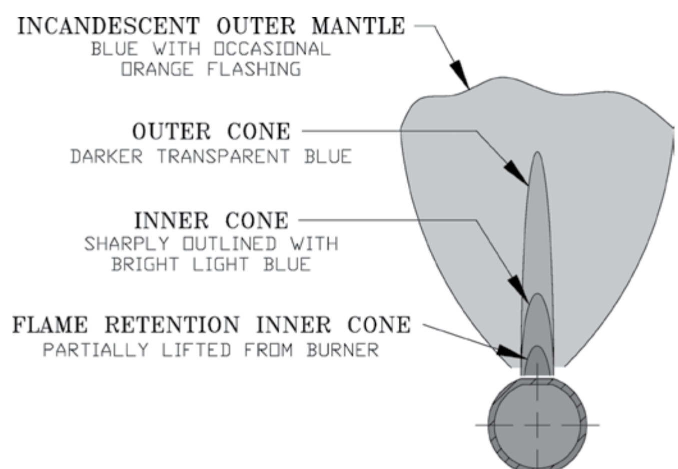


Figure 9: 1 Inch Main Burner Flame

All Series 2® Repair Parts may be obtained through your local U.S Boiler Company product distributor. Should you require assistance in locating a U.S Boiler Company product distributor in your area, or have questions regarding the availability of U.S Boiler Company brand products or repair parts, please contact U.S. Boiler Company Customer Service at (717) 481-8400 or Fax (717) 481-8408.